III. Amendments to the Claims

Kindly cancel Claims 1-16 and 32, without prejudice or disclaimer of the subject matter recited therein.

Kindly amend Claims 17-31, as shown below.

17. (Currently Amended) An injection molding machine comprising:

a plurality of molding devices which perform an injection molding operation;

a system control processor for causing said plurality of molding devices to perform the injection molding operation;

a plurality of hydraulic actuators for respectively moving said plurality of molding devices;

a plurality of valves for respectively providing hydraulic fluid to said hydraulic actuators to move the plurality of molding devices;

~~a~~ at least one manifold which provides hydraulic fluid to the plurality of valves; and

a processor, disposed adjacent at least one of (i) said manifold, and (ii) at least one of said plurality of valves, and being coupled to one or more ~~each~~ of said plurality of valves and to said system control processor, said processor storing a control program for at least one ~~each~~ of said plurality of hydraulic

actuators, said processor controlling said one or more of said plurality of valves based on the stored control programs and command signals received from said system control processor.

18. (Currently Amended) The ~~A~~ machine according to Claim 17, further comprising a plurality of sensors for monitoring said at least one of said plurality of hydraulic actuators and providing a plurality of feedback signals to said processor, and wherein said processor controls the one or more of the plurality of valves using the feedback signals and the control programs.

19. (Currently Amended) The ~~A~~ machine according to Claim 18, wherein said processor performs closed-loop control of the one or more ~~each~~ valve based on the feedback signals and the control programs.

20. (Currently Amended) A method of controlling a hydraulic actuator which is supplied with hydraulic fluid from a controllable valve and a manifold, comprising the steps of:

disposing a microcontroller adjacent the manifold;

storing in the microcontroller ~~the~~ a control program for controlling a movement of the hydraulic actuator;

providing to the microcontroller feedback signals from at least one sensor which senses a performance characteristic associated with the hydraulic actuator;

providing to the microcontroller command signals from ~~the~~ a system control processor;

calculating, in the microcontroller, control signals to control the valve to cause movement of the hydraulic controller, said microcontroller being capable of calculating the control signals based on one or more of the feedback signals, the command signals, and the stored control program; and

transmitting the control signals to the controllable valve.

21. (Currently Amended) The ~~A~~ method according to Claim 20, wherein the step of disposing the microcontroller comprises the step of mounting the microcontroller on the manifold.

22. (Currently Amended) The ~~A~~ method according to Claim 20, further comprising the steps of:

storing, in the microcontroller, the feedback signals; and

transmitting the stored feedback signals from the microcontroller to the system control processor.

23. (Currently Amended) The ~~A~~ method according to Claim 22 ~~23~~, further comprising the step of controlling a plurality of hydraulic actuator valves with said microcontroller.

24. (Currently Amended) The ~~A~~ method according to Claim 20, wherein said microcontroller performs closed-loop servo control of the controllable valve based on the stored control program and the feedback signals.

25. (Currently Amended) The ~~A~~ method according to Claim 20, wherein the microcontroller generates control program data based on the feedback signals.

26. (Currently Amended) The ~~A~~ method according to Claim 20, further comprising the step of transmitting control program data to the microcontroller from the system control processor.

27. (Currently Amended) The ~~A~~ method according to Claim 20, wherein said microcontroller controls said controllable valve to cause linear or rotary movement of said hydraulic actuator.

28. (Currently Amended) The ~~A~~ method according to Claim 20, wherein said microcontroller controls said controllable valve to linearize nonlinear characteristics of said hydraulic actuator.

29. (Currently Amended) The ~~A~~ method according to Claim 20, wherein the hydraulic actuator has an additional controllable valve, and wherein said microcontroller controls both controllable

valves to provide regenerative and non-regenerative control of said hydraulic actuator.

30. (Currently Amended) Apparatus for controlling nonlinear characteristics of a hydraulic actuator having a valve and a feedback sensor, comprising:

a memory for storing multi-dimensional operational data regarding operational characteristics of the valve; and

a processor for (i) receiving feedback signals from the feedback sensor, (ii) determining operational data from the multi-dimensional data stored in the memory based on the received feedback signals, (iii) generating control signals by applying an inverse function to the operational data to control for nonlinear characteristics of the hydraulic actuator, and (iv) outputting the control signals to the valve.

31. (Currently Amended) Apparatus for controlling a hydraulic actuator, comprising:

a first valve coupled to the actuator and causing movement of the actuator by controlling movement of hydraulic fluid through said first valve;

a second valve coupled to both said first valve and the actuator and causing movement of the actuator by controlling

movement of hydraulic fluid through the said first valve and the second valve; and

a microcontroller, disposed adjacent the valves, which controls said first valve and said second valve to provide profiling of one of (i) pressure and (ii) flow into and out of the hydraulic actuator ~~cause regenerative control of said actuator~~.

Claim 32 (Cancelled)

Kindly add new Claims 33-41, as follows:

33. (New) The method according to Claim 20, further comprising the step of storing in the microcontroller the performance characteristic curve for the controllable valve.

34. (New) The method according to Claim 20, wherein said microcontroller linearizes said feedback signals.

35. (New) The method according to Claim 31, wherein **said microcontroller controls both controllable valves to provide one of (i) regenerative and (ii) non-regenerative control of said hydraulic actuator.**

36. (New) The method according to Claim 20, further comprising the step of storing in the microcontroller additional operational parameters.

37. (New) The machine according to Claim 17, wherein the processor is disposed within one meter of said manifold.

38. (New) The machine according to Claim 17, wherein the processor is disposed within one meter of at least one of said plurality of valves.

39. (New) The method according to Claim 20, wherein the microcontroller is disposed within one meter of the manifold.

40. (New) The apparatus according to Claim 30, wherein the microcontroller is disposed within one meter of the hydraulic actuator.

41. (New) The apparatus according to Claim 31, wherein the microcontroller is disposed within one meter of the first valve.